846 [989] Seven days after the end of the fire period, Dūan sent a message to the mō to look in his book as to what direction from the house she should bury the phlai, the bamboo knife, and the pot with the now dried placenta and cord. She already knew some of the procedure: burying should take place on a Monday or a Friday; south was right during the first three months of the lunar calendar, November, December, January; and the full moon of the twelfth month (October) was especially good, for the moon waned thereafter. Chāi had been born in October, so north was right for him, but for a girl it would have been east. Song or Lek or anyone could bury the pot, but most mothers did it themselves. If it were buried in the wrong direction, the baby would die, and if not under a tree, he would leave them and their home, and roam. The instructions came. With the things in her hand, she walked toward a big jackfruit tree. Beside it was a sakāe. Either was good, so she chose the sakāe which, being nearer the house, might strengthen by that much the roots that would keep her boy at home. After burying the pot and all, she returned directly to the house, remembering to pick, as she came, a fruit, a vegetable, a leaf, and then a piece of wood, all useful things. In the house she added them to the usual household stores. By doing so, and by using them up shortly, she ensured that her new son would be a good worker, who on returning home would always bring something to add to the requirements and wealth of the household. Once buried, the placenta, "like ashes," was ignored and the spot forgotten.

846 262 [461] [753] [757] 862 Within a month after childbirth, Dūan was back at farm work, even to the back-straining pounding of rice in the big mortar. For three months she avoided fruits, particularly guava and jackfruit. Then, since the baby was thin, she gave up vegetables, especially gourds, corn, and the green plants that grew in the canal. One day, because she carelessly ate some salted field crabs, the baby got thrush on its tongue. They cured him by smearing the milky juice of a peel of klūai nam banana on the cloth sheet covering his cushion, then wiping this on his tongue (cf. Anuman Rajadhon 1961:153). So the year passed, and then another. Not long after his third birthday, Dūan realized she was pregnant again, so took steps to wean him. She painted her nipples with "black medicine" (yā dam), a bitter and hot tasting ointment made from the boraphed rhizome (McF; 474). Then she sent the child over to her mother's older sister's house for four nights. To make quite sure, she followed an old ritual way, too. She boiled an egg hard and peeled it. Holding the egg behind her back, she turned her face away from her son, and handed it to him behind her so that she could not see his face. "Henceforth, you shall not nurse any more," she said. Without looking at him, she walked

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away from him straight out the door. Thus the child was successfully weaned. Duan would have "pitied" him too much to wean him so soon had a new baby not been on the way.

Fish, fresh, dried, or salted, depending on the family fare, was a regular part of their diet (Tables 9, 10).[1] One had egg daily, and 10, frequently; but for more than half of them egg, as well as meat or poultry, was an occasional item of diet. All were fed (2)kha-(5)nom, and almost half had something in this class of foods daily. Only three had green or other vegetables daily and 5 never ate them. Bananas of the (4)nam-(4)waa variety were eaten by all, but only one had banana daily while more than half had them only occasionally. Four were sometimes given bananas other than (4)nam-(4)waa, the variety which was considered safe for infants and invalids. Two had never had other fruit, but most children of this age were occasionally given other seasonal fruit. The variety of foods other than milk given to these children did not appear to depend on whether or not they had been weaned (Tables 5 - 10).

Weaning.

Some of the children in this series had been weaned before our observations were started, and 19 had not been weaned when last visited. For 30 children the period of observation included weaning (Table 11), and in most cases enough records were obtained so that the effect, if any, of weaning on the weight curve could be ascertained.

Table 11. Age at Weaning for 37 Babies and Number for Whom Weight Records Before and After Weaning were Obtained, Bang Chan, 1952-54.

Approximate Age At Weaning	Number of Babies	
	Total	Weighed Before And After Weaning
(months)[1]		
5	1	0
9	1	1
11	1	1
12	8	4
13 - 14	5	5
16 - 17	2	2
18 - 19	8	7
20 - 22	7	6
25	2	2
28	1	1
36	1	1
Total	37	30

1. Because of the method of choosing children for study, the majority of those observed were under two years of age. We have no basis for judging what proportion of children in Bang Chan were breast fed beyond two years of age.

862 In Bang Chan infants less than a year old were seldom weaned. Of 3 such cases we encountered, the mother of one was ill with tuberculosis, and the other two mothers were again pregnant. Common answers to the question, "When should a baby be weaned?", were: "When it is a year old", or "At 1 1/2 years", or "When the mother is pregnant again." Mothers commonly nursed one infant until 3 to 7 months pregnant with the next. More than half of the children who were nursed longer than 18 months had no younger sibling during the period of this study.

Of 32 mothers who described the weaning procedure, 13 painted the nipples with boraphed or other bitter substance (lime or aloe), but an equal number said they did nothing. Six mothers gave other food instead of breast milk. In 4 cases cow's milk[1] was given; in one, bananas and (2)kha-(5)nom; and in one instance the food substitute was not specified.

Weaning in Bang Chan usually meant the end of milk feeding, but 5 babies in this series were given cow's milk feedings after weaning. These included the infant who was weaned at 5 months because of the mother's illness and two others who were weaned because of a pregnancy. The child who had been given cow's milk when the mother was away vending continued to have cow's milk at night, after weaning.

Beliefs About Foods for Babies.

853 855 242 Foods "Good For" Or "Not Good For" Babies. - In addition to asking what foods were given the baby, we asked mothers (or other informants) what foods they considered "good for" or "not good for" the baby. Informants were not prompted by asking about specific foods. The most usual answer was that the informant did not know or did not consider any food either especially suitable or unsuitable. Only 6 informants mentioned foods considered good for the baby (Table 12).[2] One of these named 3 such foods: egg, fish, and vegetables.

A larger number of informants reported that one or more foods were not good for a baby, but in a majority of instances (30 of 50 replies) the informant did not mention any food in this category. In all, 15 foods and 2 characteristics of foods

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1. No fresh milk of any kind was available in Bang Chan. Water buffaloes were ordinarily not bred in the village, and use of buffalo milk was unheard of. Among the light refreshments which could be bought at village stores, however, were coffee with condensed milk and diluted canned milk. Storekeepers stocked imported canned and dried milk including some brands designed for infant feeding. Directions for use were not in Thai, however, and the preparations actually fed to infants were often diluted more than recommended.

2 [see p. 26 - Hunlyet]

262 843 Reasons were seldom advanced for considering certain foods unsuitable for mothers or children. During pregnancy the hot-tasting foods, i.e. those made with chili, were said by one 262 informant to injure the baby's complexion. When asked at what 855 age a child could have adult food, mothers might say at one or 853 two years but often specified, without giving a reason, that they could have anything but the "hot-tasting" foods (foods seasoned with chili). Two mothers said the child could have "hot tastes" at one year, whereas one said not until the child was 3 years old. A majority did not specifically mention hot tasting foods either to include or to exclude them.

853 A reason given for omitting jackfruit from the diet during lactation was that it would cause diarrhea in the baby. One informant said that if a mother nursing a young baby 1 or 2 months old ate fresh vegetables, the baby would have diarrhea. Some informants said the "fragrant banana", (3)kluaj (5)hauaum[1], caused constipation in infants, others that it caused diarrhea, whether eaten directly by the infant or by the mother.

753 The belief that eggs would cause dental caries and should 262 therefore be omitted from children's diets was expressed by the 853 mother in a poorly nourished family of low economic status.
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862 Opinions varied as to when children could be given "adult food". This was often, but not always, the age considered appropriate for weaning. As the question was worded it apparently implied that the child "could eat food as prepared for adults in the family" and did not necessarily exclude breast feeding, since children who "could have adult food" might still be nursing. The age at which a child could have adult food was sometimes related to stage of maturity as "when he can sit", "when he has teeth", or "when he can say (1)plaa (fish)".

262 Traditional and Modern Concepts of Rice Versus "With-Rice" in the Diet. - Rice is not only the basis of the adult diet in Thailand, but it has traditionally been regarded as the strength giving food par excellence. A portion of Chutima's (1939) description of the "old system" of diet follows:

> "Our children and young women are forbidden by ancient doctrine from eating any fair quantity of animal products, but must eat plenty of rice which is considered as the only true food, the others being only appetizers. And to stimulate the palate, large quantities of hot and irritating condiments (chilies and peppers principally) are consumed at every meal.

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1. The type of banana most familiar to people in the U.S.A.

Some vegetables, boiled or raw, are also included, but in small quantities in spite of abundant supply." 262

Note that not only has rice been considered much more important as food than "with-rice"[1], but that the diet was more limited for children and young women than for men. The Food and Drug Division of the Ministry of Public Health in Thailand has been trying to encourage people to eat more "with-rice" and less rice. The few comments we heard in relation to rice versus "with-rice" illustrate both the old and the new ideas. One informant stated that only rice can make children fat and that the "hot tasting" foods help them to eat more rice. Another commented that rice makes children strong, and "with-rice" makes them weak. Another, a mother of seven children, said that if babies were given too much "with-rice" they would be potbellied. The more modern view was expressed by an informant who said that a certain child ate only rice with fish and was weak. He refused vegetables and banana. One affluent farmer, an elderly man whose orphaned grandchild was being raised on cow's milk[2], expressed the opinion that the ancient belief was based on thrift. He said that thrifty people did not want to spend much on a baby, therefore, they said that if a child ate too much "with-rice" he would be potbellied but thin in the upper part of the body and that eating eggs would cause dental caries. This grandfather said that he believed the truth to be just the opposite, but that good things were expensive. As an illustration of the idea that thrift was the basis of restriction of "with-rice", one young mother said that an egg was regarded as equivalent to one (1)plaa (1)thuu (a fish), and was enough for two persons. Sometimes one egg would serve an entire family. She said that a child would be punished if he ate a whole egg at a meal.

Summary of Infant Feeding Practices in Bang Chan with Some Suggestions for Improvement.

To sum up the information obtained on baby feeding in Bang Chan, breast feeding was the rule. Some babies were nursed for two years or longer although about two-thirds of those we observed through the weaning period had been weaned by 18 or 19 months of age. Aside from honey which was given with medicine or hot water to newborn babies for a few days only, crushed banana of the (4)nam-(4)waa variety was usually the earliest dietary supplement. By 3 months of age about half the infants were being given banana, sometimes crushed with rice. Between 853 [862]

1. In Thai the general term meaning "to eat" is translated literally "to eat rice." Food items are divided into two classes: rice and "with-rice." [A2]

2. See Footnote, page 25.

keep out of danger, they had more freedom. At this time their caloric needs may have increased more rapidly than did their caloric intake. To the student of nutrition, inadequate intake of essential nutrients seems likely to be of importance when children fail to gain.

In some areas growth failure is common at weaning, but this did not seem to be a major factor in Bang Chan. Weaning before one year of age was uncommon (Table 11, p. 24), yet growth failure occurred in many infants between 6 and 12 months.

Observations on the weight gain of 30 children whom we weighed both before and after weaning are summarized in Table 18. Four children lost or did not gain weight between the weighing before weaning and the one afterward (code numbers 13, 23, 35, and 56), while 3 others, who had been weaned shortly before a weighing, did not gain between the next two weighings (code numbers 22, 33, and 37). Thus only 7 of 30 children lost or failed to gain weight at or near the time of weaning (Table 18, I).

Weight curves of 4 children could not be interpreted in relation to weaning. Two of these (code numbers 15 and 44) were weaned just before their last weighing; for two others (code numbers 18 and 51) the intervals between weighings were long (Table 18, II). Only 5 individuals gained at each successive observation (Table 18, III), whereas 18, a majority, failed to gain at some period other than at weaning (Table 18, III and individuals designated *).

Of 19 other children who had not been weaned by the time the study ended, 10 lost weight or failed to gain at some period during the study.[1]

Since Thorangkul (1957) noted a clear association with season of weight loss or failure to gain in Bang Chan school children, the weight records of infants and young children were inspected to see if such an association occurred at younger ages also. The number of children weighed during each month and the number who had lost weight or had failed to gain since the previous weighing were counted after omitting observations on children under 6 months of age, as well as those whose most recent weighing had been obtained more than 4 months previously. Little or no indication of relation of season to weight loss or failure to gain was apparent. At the weighings in April, July, August, and September, 1953, a smaller proportion of the children had lost weight or failed to gain; but this is not

1. Of the 22 other children in the study, 20 had been breast fed but were weaned before the study began, and 2 were receiving cow's milk because of death or illness of their mothers.

[TEXT CONTINUED ON PAGE 44]

[See p 44 - Analysis]

Table 18. Observations on Weight Gain for Thirty Children Weighed Before and After Weaning.

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Sex and Code No.	Age at Observations	Age at Weaning	No. of Weighings: Before Weaning	No. of Weighings: After Weaning	Comments on Weight
	months	months			
	I. INDIVIDUALS WHO LOST OR FAILED TO GAIN WEIGHT AT OR NEAR THE TIME OF WEANING.				
F 13	0-15	12/	6	1	L 12-15[1]
M 23	2-19	14	3	2	NG 13-16
M 35	4-21	17	5	2	L 15-18
*M 56	20-37	25/	3	4	L25-28; L 31-37
*M 22	2-18	15	6	1	L 9-12; NG 15-18
M 33	4-22	12	3	4	L 12-16
*M 37	9-25	19	4	3	L 9-10½; NG 20-22; L 22-25
	II. INDIVIDUALS WHOSE WEIGHT CURVES COULD NOT BE INTERPRETED IN RELATION TO WEANING.				
F 15	0-17	16	6	1	NG 14-17
M 18	0-18	12/	3	1	Not weighed between 5-18 months.
*F 44	16-29	28	5	1	L 16-17; NG 21-24; marked gain 27-29
F 51	18-35	18/	1	3	Not weighed 18-29
	III. INDIVIDUALS WHO GAINED AT EACH SUCCESSIVE OBSERVATION.				
F 10	0-16	9	4	2	
M 19	1-17	13	5	2	
M 30	3-19	14	5	2	
M 42	11-27	19	3	3	
M 45	11-28	20	3	2	

* Individuals other than those in group IV, who lost or failed to gain weight at some period other than at weaning.

Table 18, con't.

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Sex and Code No.	Age at Observations	Age at Weaning	No. of Weighings: Before Weaning	No. of Weighings: After Weaning	Comments on Weight
	months	months			
	IV. INDIVIDUALS WHO FAILED TO GAIN AT SOME PERIOD OTHER THAN AT WEANING.				
M 4	0-15	10	5	2	NG 6-9
M 12	0-15	12/	6	1	NG 9-12; weaned right after 6th measurement; gain thereafter.
M 28	3-18	13	5	2	NG 5-6½ and 9-12
M 29	5-20	14/	3	3	L 10-14
F 31	3-21	18/	6	1	NG 6-9; L 12-15
M 32	4-21	18/	6	1	L 9-11
F 39	9-27	22	5	2	L 9½-12; NG 24-27
M 41	11-27	20/	5	2	NG 12-17
M 43	11-28	22	4	2	NG 18-21
F 46	12-22	18	2	2	NG 12-16; L 19-22
F 48	15-30	19	2	4	L 21-25
M 53	19-36	20	1	6	L 28-31
F 61	24-40	36	4	2	NG 24-27; NG 37-40
M 64	25-42	25	1	4	Weaned immediately after first weighing; large gain between 25-30 months; NG 39-42

1. L = Loss NG = No Gain Figures represent age in months.

clear evidence of a seasonal effect. If weight gain in Thai infants is related to season, this could be better defined by weighing groups of children at monthly intervals and determining when or if changes in rate of gain occur. 145

Although our records were not made for the purpose of correlating food intake with weight gain, and no quantitative information was obtained on the diets of mothers and babies, we attempted to see if any obvious relation existed between the variety of food eaten by the mother or the child and the child's growth. For this purpose, case studies were made of 7 infants whose records from birth onward were fairly complete. The age at last observation was from about 14 to 18 months. Four of these children had gained at each weighing and weighed more at one year of age than the average infant observed by Dr. Montri (1939). Three were chosen because they had lost weight or failed to gain at some time during the period of observation and weighed less at one year of age than the average infant observed by Dr. Montri. Infants of both sexes were included in each group. No illnesses or abnormalities were recorded in the clinical histories of any of these babies or their mothers. No evidence was obtained from the qualitative food records as to why some infants gained consistently and at a fairly "normal" rate, whereas others gained relatively slowly and failed to gain or lost weight at times (Smith, 1958). 145 262 [125]

Quantitative food records might have provided evidence on this point but our observations were inadequate for this purpose. Such quantitative records should include estimations of the amount of mother's milk obtained by the infants, based on the baby's weight before and after nursing, as well as records of supplementary food given. Analysis of the mother's milk, particularly for the content of the water soluble vitamins which are influenced by the mother's diet, should also help to shed light on the cause or causes of the common failure to gain weight among older infants and small children in Bang Chan. No cases of beriberi occurred among the infants we observed, but in two instances siblings had died of infantile beriberi. [164] [165]

Evidence of protein malnutrition has not been commonly recognized in rice eating areas, but one must consider the possibility that these children may be in a state analagous to pre-kwashiorkor. Development of the clinically recognizable protein deficiency disease may be forestalled when the child learned to feed himself and eats more liberally of rice with some fish and egg. Of the 54 children with kwashiorkor observed by Netrasiri and Netrasiri (1955) in Bangkok, many were weaned earlier than was usual in Bang Chan. Most of them, however, had been breast fed, and 4 were still being breast fed when the disease was diagnosed. 121 [162] [171]